



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of : **Confirmation No. 9482**  
Takayuki WATANABE et al. : Docket No. 2000-0044A  
Serial No. 09/492,137 : Group Art Unit 1761  
Filed January 27, 2000 : Examiner Robert A. Madsen  
EDIBLE POWDER MATERIAL HAVING  
EXCELLENT SHELF STABILITY :

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**RESPONSE**

THE COMMISSIONER IS AUTHORIZED  
TO CHARGE ANY DEFICIENCY IN THE  
FEES FOR THIS PAPER TO DEPOSIT  
ACCOUNT NO. 23-0975

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Responsive to the Office Action of March 5, 2004, Applicants submit the following remarks in support of the patentability of the presently claimed invention over the disclosures of the references relied upon by the Examiner in rejecting the claims. Further and favorable reconsideration is respectfully requested in view of these remarks.

Thus, the rejection of claims 1-4, 6, 8 and 10 under 35 U.S.C. §103(a) as being unpatentable over Shiseido in view of Hattori et al. is respectfully traversed.

The present invention is directed to a powder composition consisting essentially of (1) at least one component selected from the group consisting of perfumes and coloring agents, (2) 25 to 85 % by weight, based on the total weight of the powder composition, of trehalose and (3) 5 to 60 % by weight, based on the total weight of the powder composition, of water-soluble hemicellulose, the weight ratio of trehalose to water-soluble hemicellulose being in the range of 30:1 to 1:25.

Shiseido discloses a solid powder cosmetic which contains trehalose, and teaches that a water-soluble high polymer may be blended as one of optional components. Although Shiseido exemplifies this water-soluble high polymer by carboxymethyl cellulose, methyl cellulose, polyvinyl

alcohol, dextrin, gelatin, gum arabic, etc., the reference fails to teach or suggest using water-soluble hemicellulose, as the Examiner has acknowledged.

A combination of trehalose and a water-soluble high polymer such as gelatin and gum arabic in accordance with the teaching of Shiseido does not fully improve the storage stability of perfumes or coloring agents as intended in the present invention. This fact is apparent from the results of comparative experiments as shown in Mr. Suzuki's Rule Declaration which is attached hereto.

As clearly seen in the data shown in Table II of this Declaration, a combination of trehalose and gum arabic, and a combination of trehalose and gelatin, both in accordance with the teaching of Shiseido, give a storage stability (relative amount of p-cymene) of lemon powder of 4.8 and 5.2 (see Samples 6A and 7A). A combination of trehalose and water-soluble hemicellulose in accordance with the present invention, on the other hand, gives a storage stability of lemon powder of 1.3 (see Sample 1A), which is about 3.7 times and 4.0 times as high as the storage stability given by a combination of trehalose and gum arabic and by a combination of trehalose and gelatin (Samples 6A and 7A).

With respect to the storage stability of paprika powder, a combination of trehalose and gum arabic, and a combination of trehalose and gelatin give a storage stability of paprika powder (residual rate of paprika powder) of 70.9 % and 68.8 % (see Samples 6B and 7B). A combination of trehalose and water-soluble hemicellulose in accordance with the present invention, on the other hand, gives a storage stability of paprika powder of 95.4 % (see Sample 1B), which is about 1.4 times as high as the storage stability given by a combination of trehalose and gum arabic and by a combination of trehalose and gelatin (Samples 6B and 7B).

It would have been impossible to foresee from Shiseido, which teaches only a combination of trehalose and a water-soluble high polymer, that such a remarkable improvement of storage stability of perfume and coloring agent could be achieved by a combination of trehalose and water-soluble hemicellulose in accordance with the present invention.

Hattori et al. disclose a cosmetic which contains water-soluble hemicellulose, and teaches that water-soluble hemicellulose may be used together with known water-soluble high polymer such as gum arabic, carboxymethyl cellulose, methyl cellulose, polyvinyl alcohol, processed starch, etc.

However, Hattori et al. fail to teach or suggest using water-soluble hemicellulose together with trehalose.

A combination of water-soluble hemicellulose and a water-soluble high polymer such as dextrin in accordance with the teaching of Hattori et al. does not sufficiently improve the storage stability of perfume and coloring agent, as shown in the attached Rule 132 Declaration.

Thus, as shown in Table II of the Declaration, a combination of water-soluble hemicellulose and dextrin in accordance with the teaching of Hattori et al. gives a storage stability (relative amount of p-cymene) of lemon powder of 12.1 (see Sample 3A). As stated above, a combination of trehalose and water-soluble hemicellulose in accordance with the present invention, on the other hand, gives a storage stability of lemon powder of 1.3 (see Sample 1A), which is no less than 9.3 times as high as the storage stability given by a combination of water-soluble hemicellulose and dextrin.

With respect to the storage stability of paprika powder, a combination of water-soluble hemicellulose and dextrin in accordance with Hattori et al. gives a storage stability of paprika powder (residual rate of paprika powder) of only 23.1% (see Sample 3B). A combination of trehalose and water-soluble hemicellulose in accordance with the present invention, on the other hand, gives a storage stability of paprika powder of 95.4 % (see Sample 1B), which is about 4 times as high as the storage stability given by a combination of water-soluble hemicellulose and dextrin.

It would have been quite impossible to foresee from Hattori et al., which teach only a combination of water-soluble hemicellulose and dextrin, that such a remarkable improvement of storage stability of perfume and coloring agent could be achieved by a combination of trehalose and water-soluble hemicellulose in accordance with the present invention.

The Examiner takes the position that it would have been obvious to include hemicellulose in the solid powder cosmetic of Shiseido since Hattori et al. teach hemicellulose overcomes the problems of conventional water soluble polymers at these levels to enhance the moisture retention and increase shelf life of cosmetics.

However, Shiseido discloses that the use of trehalose provides “outstanding moisture effect” (paragraph 0003) as well as “excellent . . . stability” (paragraph 0014). Therefore, there would be no motivation to combine Shiseido and Hattori et al. since the reason given by the Examiner for the

combination, i.e. enhancing moisture retention and increasing shelf life, are already advantages which are achieved by Shiseido alone. Applicants thus respectfully submit that the combination of these references is based on hindsight, which is forbidden in the selection of references on which the case of obviousness is based. In re Rouffet, 47 USPQ2d 1453.

Furthermore, even if the Examiner has established a presumption of obviousness, such presumption is overcome by the showing of unexpected superior results achieved in accordance with the present invention as compared to both references, as established by the attached Rule 132 Declaration. One of ordinary skill in the art certainly would not have expected the remarkable improvement of storage stability of perfume and coloring agent achieved by a combination of trehalose and water-soluble hemicellulose, considering the effects which are produced by a combination of trehalose and a water-soluble high polymer, and by a combination of water-soluble hemicellulose and a water-soluble high polymer, as shown in the Declaration.

The rejection of claims 1, 6, 8, 10 and 12 under 35 U.S.C. §103(a) as being unpatentable over Morimoto et al. (JP '969) in view of Morimoto et al. (JP '516) is respectfully traversed.

Morimoto et al. ('969) disclose the production of soybean protein/cocoa granule by using a combination, as a granulating agent, of water-soluble polysaccharides such as pullulan and water-soluble hemicellulose, and sugar alcohol.

As acknowledged by the Examiner, Morimoto et al. ('969) fail to teach or suggest including trehalose, in a quantity of 25 to 85 %, in the above-mentioned soybean protein/cocoa granule.

Morimoto et al. ('969) exemplify sugar alcohol to be used in combination with water-soluble polysaccharides, by erythritol and maltitol. However, when water-soluble hemicellulose is used with erythritol or maltitol, sufficient improvement effect is not obtained in the storage stability of lemon powder and paprika powder, as seen in Samples 2A, 4A, 2B and 4B of Table II in the attached Declaration.

Morimoto et al. ('516), on the other hand, disclose soybean protein-containing cocoa powder which comprises trehalose and pullulan.

A combination of trehalose and pullulan gives much lower storage stability of lemon powder and paprika powder than given by a combination of trehalose and water-soluble hemicellulose in

accordance with the present invention (relative amount of p-cymene in lemon powder: 1.3 → 3.7; residual rate of paprika powder: 95.4 % → 69.7 %), as seen in Samples 5A and 5B in Table II of the enclosed Declaration.

The Examiner takes the position that it would have been obvious to modify Morimoto et al. ('969) since Morimoto et al. ('516) teaches 5-40 % trehalose improves the flavor of a soybean protein/cocoa powder.

Applicants response to the Examiner's position is essentially the same as indicated above in connection with the previously discussed rejection. Applicants particularly emphasize the unexpected superior results achieved in accordance with the present invention as compared to either Morimoto et al. ('969) or Morimoto et al. ('516), as shown in the Declaration. There is absolutely no suggestion in these references which would lead one of ordinary skill in the art to expect that these superior results could be achieved by combining both trehalose and water-soluble hemicellulose in the recited amounts.

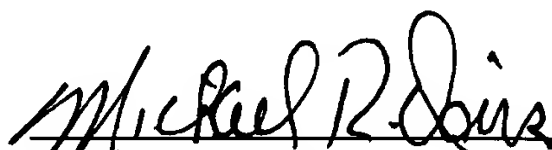
For these reasons, Applicants take the position that the presently claimed invention is clearly patentable over the applied references.

Therefore, in view of the foregoing remarks, it is submitted that each of the grounds of rejection has been overcome, and that the application is in condition for allowance. Such allowance is solicited.

Respectfully submitted,

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